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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/847,776

05/02/2001

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05/28/2008

EXAMINER

PAN, DANIEL H

ART UNIT

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2183

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/847,776	<b>Applicant(s)</b> ALTMAN ET AL.	
	<b>Examiner</b> Daniel Pan	<b>Art Unit</b> 2183	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-19 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9 and 11,12,17-19 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 13-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

1. Claims 1-9,11-19, 21 remain for examination. Claims 10, 20 have been canceled.
2. Claims 1,2,7-9,11,12,17-19,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bala (6,351,844) in view of Fu et al. (6,381,678).
3. As to newly amended feature of claims 1,11, Bala did not specifically teach examining his tag (the hit) without first attempting performing a cache fetch so that the time required to attempt a cache fetch is saved if said tag has not been set as claimed. However, Fu taught a system for examining a tag (see hit/miss) without attempting a cache fetch (see the step without converting the hit request to prefetch in fig.4B [235], see the prefetch is useless with a cache hit in col.5, lines 64-67, col.6, lines 1-12). It would have been obvious to one of ordinary skill in the art to use Fu in Bala for examining the tag without attempting a cache fetch so the time for attempting cache fetch is saved as claimed because the use of Fu could provide Bala the ability to accept a predefined set of request based on the given set of tags, thereby avoiding the unnecessary fetching cycles, and it could be done by predefining the cache request of Fu into Bala with modified configurations so that the specific tag of Fu could be recognized by Bala, and because Bala also disclosed a circular buffer could be used for analyzing the traces (see col.6, lines 14-20, also see the continuing of the interpreter operation for the given instruction upon miss in col.3, lines 20-30 ), and one of ordinary skill in the art should be able to recognize a trace would be applicable as a tag for

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indicating cache condition in order to minimize the access latency due to miss, in doing so, provided a motivation.

4. The rejections to claims 1,2,7-9,11,12,17-19,21 have been maintained and incorporated by reference the last Office action on 08/16/07. However, upon further review, claims 3-6, 13-16 are objected as indicated below in this action.

5. The response filed on 02/25/08 has been fully considered but is not persuasive.

6. In the remarks, applicant argued that :

a) applicant's invention improves on these prior techniques because the determination of whether a translation exists can be effected by the relatively fast technique of examining a field within the code tag associated with an instruction rather than perform a cache fetch for possible translated versions in each case;

b) Fu has nothing with compiling and translating code;

c) Fu's deals with prefetches, not examining of the tag without performing fetch;

d) claim 1 was previously amended to recite: if the tag has not been set interpreting and compiling the given instruction from the first representation for further execution of the program. Neither Bala nor Fu et al., whether taken alone or in combination, teach or suggest, based on the status of the tag, returning to the first representation, and interpreting and executing it. This provides the advantage of a fast and efficient way to continue executing the program, without undue burden in terms of additional operations and computational overhead, which could be required if additional translation were

attempted. Thus, this is a second reason for why claim 1 is patentable over the combination of Bala and Fu et al;

e) Bala's col.5, lines 55-67 is dealing with code tracing, not execution of the program;

f) Bala's tag is multiple bits;

g) claim 19 recites a single tag corresponding to a plurality of instructions.

7. As to a), Bala also taught setting a code tag (hit/miss) associated with the instruction a tag (see setting a tag [hit] with the instruction in col.1, lines 30-47). As to rather perform a cache fetch, see FU taught a system for examining a tag [hit/miss] without a cache fetch in the step without converting the hit request to prefetch in fig.4B [235], see the prefetch is useless with a cache hit in col.5, lines 64-67, col.6, lines 1-12.

8. As to b) no specific limitation of compiling and translating code has been recited in the claim. Therefore, examiner holds that feature of compiling and translating code is applicable in general, And Fu must have compiling and translating code.

9. As to c), Fu clearly taught the prefetch is useless with a cache hit in col.5, lines 64-67, col.6, lines 1-12 and without converting the hit request to prefetch in fig.4B [235]. Therefore, Fu deals with a tag [hit], not fetch [prefetch].

10. As to d) above, see discussions in a)-c) above.

11. As to e), applicant is directed to the interrupt handle of Bala. Bala's code tracing is for execution purpose. Otherwise, it serves no purpose. Applicant also recites interrupt handler "for program execution", not execution of the program.

12. As to f), examiner holds that one of ordinary skill in the art should be able to recognize Bala is also applicable for single bit.

13. As to g), one of ordinary skill in the art should be able to recognize a single tag could correspond to more than one instruction, or a group of instructions, in general unless the relation of the single tag to each of the instructions is specially recited.

Claims 3-6, 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the prior art of record further comprising executing the translated version of the given instruction, and, upon reaching the end of such execution, determining whether a subsequent instruction is to be executed, and if so, determining whether such subsequent instruction exists in a translated version by examining a tag associated with a first representation of the subsequent instruction.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Pan whose telephone number is 571 272 4172.

The examiner can normally be reached on M-F from 8:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan, can be reached on 571 272 4162. The fax phone number for the organization where this application or proceeding is assigned is 703 306 5404.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*21 Century Strategic Plan*

/Daniel Pan/  
Primary Examiner, Art Unit 2183

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